

Abstract Submitted
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Quantum-classical correspondences in time-dependent rotational revival spectra for asymmetric rotors in strong fields JOSIAH COCHRAN, EDWARD HAMILTON, LeTourneau University — Time-dependent rotational recurrence spectroscopy of asymmetric molecules reveals strong revival structures characteristic of a system in which quantum dynamics are strongly reflecting a small number of underlying classical trajectories. The classical rotor allowed to spin in the presence of a weak external field is chaotic in nature, filling all of phase space, but it can be pinned on its unstable axis and forced into a precessional motion that is confined phase space by a sufficiently strong electric field. Our area of interest is intermediate parameter choices between the free rotor and the pendular where closed periodic orbits are surrounded by chaotic ones. A study of this area of phase space will be performed by gradually turning off the field, and compared with statistical properties of the associated quantum system that are diagnostic of the onset of quantum chaos.

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